

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Canceled)

2. (Previously Amended) An image forming apparatus comprising:

a pressing roller for pressing a sheet at the time of a fixing operation;

a fixing roller having a hollow portion, facing said pressing roller, rising in temperature by being heated, and fixing a developer to the sheet by sandwiching the sheet between said fixing roller and said pressing roller;

induction heating coils including a center-section coil and an end-section coil, and arranged inside said fixing roller in an axial direction so as to leave a space between the center-section coil and the end-section coil, the space being adjusted so that the temperature of one surface of said fixing roller, said one surface opposing the space, is not higher than the temperatures of the other surface of said fixing roller, said other surface opposing central portions of the coils; and

overheating prevention devices for monitoring an abnormally overheated condition of said fixing roller, and for breaking a circuit with said fixing roller so as to turn-off power applied to the two coils at the time of the occurrence of the abnormally overheated condition in which the temperature of the one surface of said fixing roller is more than a predetermined temperature, said overheating prevention devices being provided so as to oppose the center-section coil and the end-section coil, but not to oppose the space between the center- and end-section coils.

3. (Previously Amended) The image forming apparatus according to

claim 2, wherein either the center-section coil and the end-section coil are simultaneously or alternately turned on and heated, or only one of them is turned on and heated.

4. (Previously Amended) The image forming apparatus according to claim 2, further comprising a heating control section for independently controlling the turn-on or turn off of the power to the center-section coil and the end-section coil.

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5. (Original) The image forming apparatus according to claim 4, wherein said heating control section includes a main coil heating control section for controlling the turn-on or turn-off of the power to the center-section coil, and a sub coil heating control section for controlling the turn-on or turn-off the power to the end-section coil.

6. (Original) The image forming apparatus according to claim 4, further comprising:

temperature monitor detecting the surface temperature of said fixing roller being heated by the center-section coil and the end-section coil; and

switch controller controlling said heating control section based on an output from said temperature monitor such that the temperature of said fixing roller becomes suitable for carrying out a fixing operation by simultaneously or alternately turning on the center-section coil and the end-section coil.

7. (Original) The image forming apparatus according to claim 2, wherein said overheating prevention devices are thermostats or thermal fuses for automatically breaking the circuit at the time of an abnormal overheating condition.

8. (Original) The image forming apparatus according to claim 6, wherein said temperature monitor is a first thermistor for detecting the surface temperature of the central portion of said fixing roller and a second thermistor for detecting the surface temperature of one end portion of said fixing roller.

9. (Original) The image forming apparatus according to claim 8, wherein the heating control of the center-section coil is performed based on an output of the first thermistor, and the heating control of the end-section coil is performed based on an output of the second thermistor.

10. (Original) The image forming apparatus according to claim 3, which is capable of selecting the case where either of the center-section coil or the end-section coil is continuously heated and the case where both of the center-section coil and the end-section coil are heated at a constant duty ratio, in a warming-up mode, a standby/idle mode, and a printing mode.

11. (Previously Amended) The image forming apparatus according to claim 2, wherein the end-section coil comprises a first coil and a second coil, which are provided at one end and the other end of the center-section coil, respectively.

12. (Previously Amended) An image forming apparatus comprising:
a pressing roller for pressing a sheet at the time of a fixing operation;
a fixing roller having a hollow portion, facing said pressing roller, rising in temperature by being heated, and fixing a developer to the sheet by sandwiching the sheet between said fixing roller and said pressing roller;
induction heating coils including a center-section coil and an end-section coil, and arranged inside said fixing roller in an axial direction so as to leave a space between the center-section coil and the end-section coil, the space being adjusted so that the surface temperature of one surface of said fixing roller, said one surface opposing the space, is not higher than the temperatures of the other surface of said fixing roller, said other surface opposing central portions of the coils in the case where either of the center-section coil or the end-section coil is continuously heated and in the case where both of the center-section coil and the end-section coil are heated at a constant duty ratio, in a warming-up mode, a standby/idle mode, and a printing mode;

a first thermistor for detecting the surface temperature of the central portion of said fixing roller;

a second thermistor for detecting the surface temperature of the end portion of said fixing roller;

a heating control section for controlling turn-on or turn-off of power applied to the center-section coil and the end-section coil based on outputs of the first thermistor and the second thermistor; and

overheating prevention devices for monitoring an abnormally overheated condition of said fixing roller, and for breaking a circuit with said fixing roller so as to

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turn- ff th p w r to the two coils at th time f the ccurrence of the abn rmally overheated condition in which the temperature of the one surface of said fixing roller is more than a predetermined temperature, said overheating prevention devices being provided so as to oppose central portions of the center-section coil and the end-section coil, but not to oppose the space between the center- and end-section coils.

13. (Previously Added) The image forming apparatus according to claim 11, wherein said first coil and said second coil are connected in series.

14. (New) A method of forming an image with an image forming apparatus, comprising:

sandwiching a sheet between a fixing roller and a pressing roller;

induction heating the fixing roller with a center-section coil and an end-section coil, the center-section coil and the end-section coil being arranged inside the fixing roller in an axial direction so as to leave a space between the center-section coil and the end-section coil;

monitoring an overheated condition of said fixing roller using an overheating prevention device that opposes the center-section and the end-section coil; and

turning off power applied to the center-section and end-section coils when the overheated condition occurs in which the temperature of a first surface of the fixing roller opposing the space is more than a predetermined temperature,

wherein the space is adjusted such that the temperature of the first surface of the fixing roller opposing the space is not higher than the temperature of a second surface of the fixing roller opposing a central portion of the coils.

15. (New) The method according to claim 14, wherein one of:

the center-section coil and the end-section coil are simultaneously turned on;

the center-section coil and the end-section coil are alternatively turned on;

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16. (N w) An image forming apparatus comprising:
a pressing roller means for pressing a sheet at the time of a fixing operation;
a fixing roller means having a hollow portion, facing said pressing roller means,
rising in temperature by being heated, and fixing a developer to the sheet by
sandwiching the sheet between said fixing roller means and said pressing roller means;
induction heating coil means including a center-section coil and an end-section
coil, and arranged inside said fixing roller means in an axial direction so as to leave a
space between the center-section coil and the end-section coil, the space being adjusted
so that the temperature of one surface of said fixing roller means, said one surface
opposing the space, is not higher than the temperatures of the other surface of said
fixing roller means, said other surface opposing central portions of the coils; and
overheating preventing means for monitoring an abnormally overheated condition
of said fixing roller means, and for breaking a circuit with said fixing roller means so as
to turn-off power applied to the two coils at the time of the occurrence of the
abnormally overheated condition in which the temperature of the one surface of said
fixing roller means is more than a predetermined temperature, said overheating
preventing means being provided so as to oppose the center-section coil and the end-
section coil, but not to oppose the space between the center- and end-section coils.

17. (New) The image forming apparatus according to claim 16, wherein one
of:
the center-section coil and the end-section coil are simultaneously turned
on;
the center-section coil and the end-section coil are alternatively turned on;
and
one of the center-section coil and the end-section coil is turned on.